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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
CONNELLY CUSHWA, MICHELLE R

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 08/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/049,898	Applicant(s) DEUTSCH, BERNHARD A.M.	
	Examiner Michelle R. Connelly-Cushwa	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sh t with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6 and 9* is/are rejected.

7)☒ Claim(s) *2,3,7 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The prior art documents submitted by applicant in the Information Disclosure Statement filed on February 12, 2002 have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

One (1) sheet of formal drawings was filed on February 12, 2002 and has been accepted by the Examiner.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: reference number 29 in Figure 1; reference number 15 in Figure 2; and reference numbers 7 and 9 in Figure 3. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 1-9 are objected to because of the following informalities:

Regarding claim 1; the language of claim 1, specifically lines 3-6, which state "and that by means of this outer coating a sufficiently large magnetic field is generated that this, as well as the Faraday effect in the fiber core and the length of the light waveguide in that manner, to cause a substantial polarization rotation" is grammatically incorrect and difficult to understand, failing to conform with current U.S. practice. The claim appears to be a literal translation into English from a foreign document. The examiner suggests rewording these lines to state –and wherein the outer coating generates a sufficiently large magnetic field, creating a Faraday effect in the fiber core along a length of the fiber, that causes a substantial polarization rotation.— The claim has been interpreted and prior art has been applied in view of this suggestion.

Regarding claims 2-4; the claims inherently contain the deficiencies of any base or intervening claims from which they depend.

Regarding claim 5; the language of claim 5, specifically lines 3-6, which state "wherein the outer fiber coating is such that it generated a permanent magnetic field in the fiber core, and that this magnetic field is sufficiently large that, along with the Frarday effect of the fiber core and the length of the light waveguide in such a manner to cause a substantial polarization rotation" is grammatically incorrect and difficult to understand, failing to conform with current U.S. practice. The claim appears to be a literal translation into English from a foreign document. The examiner suggests rewording these lines to state –wherein the outer fiber coating generates a permanent magnetic field in the fiber core, the magnetic field being sufficiently large to create the

Faraday effect in the fiber core along a length of the fiber, causing a substantial polarization rotation. — The claim has been interpreted and prior art has been applied in view of this suggestion.

Regarding claims 6-9; the claims inherently contain the deficiencies of any base or intervening claims from which they depend.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kornreich et al. (US 6,072,930).

Regarding claim 1; Figure 3 of Kornreich et al. discloses an optical waveguide (fiber, 50), the optical waveguide comprising:

- a fiber core (54);
- a fiber cladding (52); and
- an outer coating (56), the outer coating (56) being disposed between the fiber core (54) and the fiber cladding (52);
- wherein the outer coating (56) consists of a material having magnetic properties (see column 6, lines 38-40); and

- wherein by means of the outer coating (56) a sufficiently large magnetic field is generated that creates a Faraday effect in the fiber core along a length of the light waveguide (fiber) in a manner that causes substantial polarization rotation (45 degree rotation, see column 6, lines 30-37).

Regarding claim 4; the optical waveguide (50) is a single waveguide.

Regarding claim 5; In column 6, lines 43-45, Kornreich et al. discloses that an optical isolator (isolator) is formed with a polarizer (polarizing fiber) and a polarization rotator (Faraday rotator fiber), the polarization rotator comprising:

- an associated light waveguide fiber (50, see Figure 3, column 5, lines 35-40, and column 6, lines 30-40) having:
  - a glass fiber core (54) that shows the Faraday effect;
  - a glass fiber cladding (52); and
  - an outer fiber coating (56), the outer coating being disposed between the fiber core and the fiber cladding;
  - wherein the outer fiber coating (56) generates a permanent magnetic field in the fiber core, the magnetic field being sufficiently large to create the Faraday effect in the fiber core along a length of the fiber, causing a substantial polarization rotation (45 degrees rotation).

Regarding claim 9; the optical waveguide fiber (50) is a single waveguide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kornreich et al. (US 6,072,930) in view of Braun et al. (US 3,768,146).

Regarding claim 6; Kornreich et al. discloses all of the limitations of claim 6 as applied to claim 5 above, except for specifically stating that the fibers of the polarizer (polarizing fiber, see column 6, lines 43-45) and of the polarization rotator (Faraday rotator fiber) are spliced. Kornreich et al. discloses that an optical isolator is formed from a polarizing fiber and a Faraday rotator fiber, the two fibers being used in conjunction (i.e. the fibers are coupled). One of ordinary skill in the art would have found it obvious to couple the polarizing fiber and the Faraday rotator fiber by any known methods, since Kornreich et al. does not disclose or suggest a specific coupling method and it appears that the invention would perform equally well regardless of the coupling method employed. Braun et al. discloses a method of splicing two optical fibers (15, 16), wherein the fibers are coupled to form a continuous, spliced fiber. Thus, one of ordinary skill in the art would have found it obvious to couple the polarizing fiber and the Faraday rotator fiber taught by Kornreich et al. by splicing the two fibers together as taught by Braun et al.

Allowable Subject Matter

Claims 2, 3, 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art cited on attached form PTO-892 is the most relevant prior art known, however, the invention of claims 2, 3, 7 and 8 distinguishes over the prior art of record for the following reasons.

Regarding claims 2 and 7; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an optical waveguide as defined in claim 2 or an optical isolator as defined in claim 7, wherein the outer coating is subdivided into two half-shells whose magnetic orientations are mutually opposed in combination with the limitations of base claims 1 and 5, respectively.

Regarding claims 3 and 8; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an optical waveguide as defined in claim 3 or an optical isolator as defined in claim 8, wherein the core is doped with YIG material in combination with the limitations of base claims 1 and 5, respectively.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 2, 3, 7, and 8.

Conclusion

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (703) 305-5327. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on 703-308-4819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956.

Michelle R. Connelly-Cushwa
Michelle R. Connelly-Cushwa
Patent Examiner
August 8, 2003